

## Appendix Item 1 – Server Code

The “server side” software receives XML data from the graphical control panel and transforms the data into a format that can be sent to and accepted by the Transmitter.

The XML of the CONTROL structure looks like this:

```
<?xml version="1.0"?>
<!DOCTYPE control [
    <!ELEMENT device (channel, level)>
    <!ELEMENT channel (#PCDATA) >
    <!ELEMENT level (#PCDATA) >
]>
```

Where channel is the device to control (0 to N) and level is the state (0 for off, etc.)

EXAMPLE:

```
<control>
    <device>
        <channel>0</channel>
        <level>4</level>
    </device>
</control>
```

The XML of the HEADER structure looks like this:

```
<?xml version="1.0"?>
<!DOCTYPE header [
    <!ELEMENT user (ID)>
    <!ELEMENT ID (#PCDATA) >
]>
```

EXAMPLE:

```
<header>
    <user>
        <ID>123456789</ID>
    </user>
</header>
```

As many elements as needed may be added to this header to further identify the user.

The Basic logic of the server is as follows:

Begin Program;

```
{  
  
    Initialize TCP/IP (use any available port);  
  
    Initialize USB IO (for communication with our digital IO board);  
  
    .  
  
    LOOP Waiting for incoming connections;  
    {  
  
        Process connection;  
  
        Read HEADER* from new connection;  
  
        Extract User ID ;  
  
        IF valid user ID then begin message loop  
            While valid connection  
            {  
  
                Receive message and decode it;  
  
                Verify decoded message;  
  
                Write valid code to USB; Discard invalid message;  
  
            }  
  
        ELSE break connection;  
  
    }  
}
```

End Program;